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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/600,087 | 06/20/2003 | Makoto Maruya | P/289-169 | 9145 |

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OSTROLENK FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403

| EXAMINER | |
|---|---|
| CHAWAN, SHEELA C | |
| **ART UNIT** | **PAPER NUMBER** |
| 2624 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 01/09/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/600,087 | MARUYA, MAKOTO | |
| | Examiner | Art Unit | |
| | Sheela C. Chawan | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17 and 47, 49 -68* is/are pending in the application.

4a) Of the above claim(s) *18-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11-13,15,47,49-54,57,59,62-65 and 68* is/are rejected.

7)☒ Claim(s) *9,10,14,16,17,48,55,56,58,60,61,66 and 67* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/27/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## *DETAILED ACTION*

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Response to Amendment*

2. Applicant's amendment filed on 11/06/06 has been entered and made of record.

### Election/Restriction

3. Claims 18-46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made traverse of Species I, claims 1-17, 47-68 is acknowledging.

### *Claim Objections*

4. Claim 48 should be also withdrawn because it depends on claim 45, which is non- elected claims.

### *Information Disclosure Statement*

5. The information disclosure statement (IDS) submitted on 8/27/03, the information disclosure statement is being considered by the examiner.

### *Drawings*

6. The Examiner has approved drawings filed on 6/20/03.

### *Allowable Subject Matter*

7. Claims 9, 55,60,66,10,56,61,58,16,17 and 67 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 11-13,15,47, 49- 54, 57,59,62-65 and 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo (US. 5,606,627).

As to claim 1, Kuo discloses a topographic data processor (note, a stereo image pair is used to extract topographic elevation) comprising:

means for selecting a pair of frames from a plurality of candidate picture frames of a target area captured from different high-altitude positions (column 7, lines 20-48), said pair of frames constituting a stereoscopic image of said target area (column 5, lines 2- 22);

means for determining a parallax between the selected frames and producing therefrom a first plurality of line-of-sight vectors and a second plurality of line-of-sight vectors (note, line -of- sight corresponds to coordinates, column 5, lines 23-26); and

means for converting said first and second pluralities of line-of-sight vectors to topographic data (column 5, lines 26- 48).

As to claims 2, 63 Kuo discloses a topographic data processor as claimed in claim 1, wherein said frame selecting means comprises:

frame combining means for combining said candidate frames into a plurality of pairs of frames which constitute a stereoscopic image of said target area (column 8, lines 30- 57); and

evaluating means for evaluating each of said pairs of frames with a fitness value indicative of fitness of said each pair of frames to topographic measurement of said target area (column 7, lines 20- 48).

As to claims 3, 49 and 64 Kuo discloses a topographic data processor as claimed in claim 2, wherein said evaluating means comprises: a geometric condition (fig 2, illustrates the geometric relationship of a stereo pair of vertical
images that are used in determination of terrain elevation (fig 3, illustrates the geometric relationship of a tilted image with respect to a camera station of the image and a reference datum plane and also (fig 11, shows a geometric relationship between 5 disjoint, non-collinear control points that are used to adjust the attitude angles of airborne control data for both the left and right images of a stereo image pair). analyzer for analyzing said pairs of frames in terms of their geometric condition and evaluating said pairs of frames with a fitness value proportional to their image resolution (column 13, lines 36-50); and

decision making means for making a decision on the fitness values (fig 5, column 8, lines 58-67,column 9, lines 1-15, 38 through column 10, line 5) are obtained from all

pairs of frames and selecting one of said pairs of frames having the highest fitness value (column 13, lines 64-67, column 14, lines 1-5).

As to claims 4, 50 and 68 Kuo discloses a topographic data processor as claimed in claim 3, wherein said parallax determining means determines a parallax between the frames of each said pair of frames, and wherein said evaluating means further comprises frame matching analyzing means for analyzing said pairs of frames in terms of degree of match between the paired frames and evaluating said pairs of frames with a fitness value proportional to an average value of point-to-point correlations between said paired frames, wherein said decision making means produces a total value of the fitness values of each of said pairs of frames and selecting one of said pairs of frames having the highest total value (note, calculating a three dimensional space coordinate for a feature points projected on horizontal projection plane at a height h above a know reference datum plane using first set of airborne associated with left image and second set of airborne control data associated with right image, column 5, lines 29-51).

As to claims 5 and 51, Kuo discloses a topographic data processor as claimed in claim 2, wherein said parallax determining means comprises: frame aligning means for aligning the frames of said selected pair in orientation; and correlation calculating means for calculating point-to-point correlations between the aligned frames (column 9, lines 16-26).

As to claims 6 and 52, Kuo discloses a topographic data processor as claimed in claim 4, wherein said parallax determining means comprises:

frame aligning means for aligning the frames of said selected pair so that the frames are equally oriented (column 13, lines 36- 50, 64- 67, column 14, lines 1-5); and

correlation calculating means for calculating point-to-point correlation values between the aligned frames and supplying the calculated correlation values to said frame-matching analyzing means, and wherein the frame matching analyzing means calculates said average value of point-to-point correlations from the correlation values supplied from the correlation calculating means (column 5, lines 29 – 51, column 8, lines 58- 67, column 9, lines 1-15, 38 through column 10, line 5).

As to claims 7 and 53, Kuo discloses a topographic data processor as claimed in claim 4, wherein said parallax determining means further comprises an interpolator for interpolating one of the paired frames before said frames are aligned in orientation so that said frames of said pair have equal value of resolution (column 8, lines 1-29).

As to claims 8,15, 54, 59 and 65 Kuo discloses a topographic data processor as claimed in claim 2, wherein said evaluating means further comprises filtering condition analyzing means for analyzing each of said pairs of frames in terms of filtering condition and evaluating each said pair of frames with a fitness value representative of filtering characteristics of image sensors(column 8, lines 30-57).

As to claim 11, Kuo discloses a topographic data processor as claimed in claim 1, further comprising storage medium for storing a plurality of picture frames captured by airborne image sensors, wherein said selecting means selects said pair of frames from said storage medium (column 8, lines 30-37, fig 9A element 204).

As to claim 12, Kuo discloses a topographic data processor as claimed in claim 10, wherein said frame combining means includes area selecting means for selecting picture frames covering said target area from all picture frames stored in said storage Medium (fig 9A, element 210 and 214).

As to claims 13 and 57, Kuo discloses a topographic data processor as claimed in claim 1, further comprising an image sensing scheduler comprising:

image sensor selecting means for selecting at least one airborne image sensor if an appropriate frame is not available to constitute said stereoscopic image and sensing picture frames from the selected image sensor (fig 4, column 5, lines 2-22, column 7, lines 20- 48, column 8, lines 30- 57, column 10, lines 6- 47);

frame combining means for combining the sensed picture frames to form a plurality of pairs of received frames, which may constitute a stereoscopic image of said target area (column 5, lines 2-22, column 8, lines 30- 57, column 13, lines 30-35);

evaluating means for evaluating each pair of sensed frames with a fitness value indicative of fitness of said each pair of frames to topographic measurement of said target area (column 7, lines 20- 48); and

means for producing a schedule for selecting one or more airborne sensors based on the fitness values obtained from all pairs of sensed frames (fig 4, column 8, lines 30- 57, column 10, lines 6- 47).

As to claim 47 see the rejection of claim 1 above.

As to claim 62, see the rejection of claim 1 above.

***Other prior art cited***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuo (US.5,596,494) discloses method and apparatus for acquiring digital maps.

Sigel (US. 5,168,531) discloses real-time recognition of pointing information from video.

Ray et al., (US.5,764,231) discloses method and apparatus for creating geometric depth images using computer graphics.

***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2624
Jan 3, 2007

Sheela Chawan

SHEELA CHAWAN
PRIMARY EXAMINER